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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,809	04/07/2005	Robert George Dunster	14036.50USWO	6212

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EXAMINER	
BOECKMANN, JASON J	

ART UNIT	PAPER NUMBER
3752	

MAIL DATE	DELIVERY MODE
07/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/508,809	DUNSTER ET AL.	
	Examiner	Art Unit	
	Jason J. Boeckmann	3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *30 April 2007*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-14,17-22,24-26,30 and 31* is/are pending in the application.

4a) Of the above claim(s) *6,8,10,11 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-5, 7, 9, 12-14, 17-19, 21, 22, 24-26, 30 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4, 13, 14, 18, 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Zuev et al (6,223,827).

Zuev et al shows a fire and explosion suppression system, comprising: a source of pressurized liquid extinguishing agent (1), a source of a pressurized gas (2), mist producing means (12) connected to receive a flow of the liquid extinguishing agent at a mass flow rate thereof to produce a mist therefrom, mixing means (8) for mixing the already-produced mist into a flow of the pressurized gas to produce a discharge in the form of a two-phase mixture comprising a suspension of droplets of the mist in the pressurized gas, wherein the flow of the pressurized gas has a mass flow rate and the pressurized gas is pressurized by being stored under pressure which thus reduces during the flow thereof and reduces the mass flow rate of the gas, and a control means (3) including means for applying the pressure of the stored gas to pressurize the liquid extinguishing agent (7) whereby the reducing applied pressure correspondingly reduces the mass flow rate of the liquid extinguishing agent so as to control the ratio of the mass flow rate of the liquid extinguishing agent to the mass flow rate of the pressurized

gas towards such a value (the set value) as to tend to produce a desired droplet size distribution in and for substantially the duration of the discharge.

Regarding claim 18, the use of the apparatus of Zuev et al inherently performs the methods and steps of the claim.

Claims 3-5, 7, 9, 12-14, 17-19,21, 22 and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Dorkin et al (WO99/52643) using USPN 6,478,240 for reference.

Dorkin et al shows a fire and explosion suppression system, comprising: a source of pressurized liquid extinguishing agent (15), a source of a pressurized gas (16), a mist producing means (3) connected to receive a flow of the liquid extinguishing agent at a mass flow rate thereof to produce a mist therefrom mixing means (2) for mixing the already-produced mist into a flow of the pressurized gas to produce a discharge in the form of a two-phase mixture comprising a suspension of droplets of the mist in the pressurized gas, wherein the flow of the pressurized gas has a mass flow rate and the pressurized gas is pressurized by being stored under pressure which thus reduces during the flow thereof and reduces the mass flow rate of the gas, and a control means (20, 18) including means for applying the pressure of the stored gas to pressurize the liquid extinguishing agent (17) whereby the reducing applied pressure correspondingly reduces the mass flow rate of the liquid extinguishing agent so as to control the ratio of the mass flow rate of the liquid extinguishing agent to the mass flow rate of the pressurized gas towards such a value (the set value) as to tend to produce a

desired droplet size distribution in and for substantially the duration of the discharge, and a controllable valve (19) for adjusting the mass flow rate of the liquid agent during the discharge.

Regarding claims 3 and 9, the control means includes a means for applying the pressure of the stored gas to pressurize the liquid (17).

Regarding claim 7, the valve means comprises a controllable metering valve (20) for adjusting the valve in dependence of the mass flow rate of the gas.

Regarding claim 12, the liquid extinguishing agent flow is initiated before the gas flow (column 7, lines 40-45).

Regarding claims 17-19, 21, 22 and 24-26, the use of the apparatus of Dorkin et al inherently performs the steps and methods of the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorkin et al (WO99/52643) using USPN 6,478,240 for reference, in view of Russwurn et al (6,173,790).

Dorkin et al shows all aspects of the applicant's invention as in claims 1 and 15, but does not specifically disclose that the pressurized gas is inert gas. However, Russwurn et al shows a fire-extinguishing device including pressurized gas that is inert and a liquid fire-extinguishing agent that is water. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention, under the teachings of Russwurn et al, to use inert gas in the fire suppression system of Dorkin et al, in order to extinguish a fire more quickly.

Response to Arguments

Applicant's arguments filed 4/30/2007 have been fully considered but they are not persuasive.

Regarding applicant's arguments concerning the control means of both the Zuev reference and the Dorkin reference, both references have a control means (see rejections above) including means for applying the pressure of the stored gas to pressurize the liquid extinguishing agent (7), whereby the mass flow rate of the liquid agent will reduce as the mass flow rate of the pressurized gas reduces, due to being connected by tube 7. With that said, the ratio of the mass flow rate of the liquid

extinguishing agent to the mass flow rate of the pressurized gas is controlled at a certain value (the set value of the control valve 3 for Zuev and valves 20 and 18 for Dorkin) to produce a desired droplet size distribution (any droplet size is desired because applicant claims no details describing the desired size) in and for substantially the duration of the discharge. In addition, the mass flow rate of the pressurized gas will reduce upstream of the control valve during the flow thereof due to the loss in pressure of the gas leaving the container.

Regarding applicant's arguments concerning the mist producing means of the Dorkin reference, since no particular structure or details are disclose describing the mist producing means and how it produces the mist, of the present invention, the examiner notes that the holes in the liquid dispersion means (3) of figure 1, where the water is dispersed into the flow of pressurized gas, creates a mist and is a mist producing means as much as the "mist producing means" of the present invention produces a mist. In the Dorking reference, the mist is produced (the liquid is sprayed form the holes) before the gas entrains the liquid, just as in the present invention.

Regarding applicant's arguments concerning the means for initiating the flow of liquid extinguishing agent before initiating the flow of the gas, Dorkin specifically discloses that the air supply valve opens after the water supply valve (column 7, lines 40-45) with means the liquid has to begin flowing before the gas begins to flow. Although the gas may enter the mixing chamber before the liquid as stated in the abstract, the device of Dorkin initiates the flow of the liquid before the gas begins to flow.

Regarding applicant's arguments concerning claims 7 and 19, It is noted, that if the gas in the compressed gas bottle drops below the desired level, then the pressure leaving the compressed gas bottle will reduce during the flow thereof and consequently will reduce the pressure of the liquid agent, thereby automatically adjusting the fluid flowing through the valve (20) in dependence of the pressure of the stored gas.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason J. Boeckmann whose telephone number is (571) 272-2708. The examiner can normally be reached on 7:30 - 5:00 m-f, first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin P. Shaver can be reached on (571) 272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JJB JJB 7/5/07

Joseph A. Kaufman
Primary Examiner
7/9/07